

CLEAN VERSION OF PENDING CLAIMS

1 1. (Amended) A method for preserving frame order across an aggregated link
2 comprised of a plurality of virtual links each supporting a particular transmission rate, the
3 method comprising:

4 receiving up to a plurality of indications denoting commencement of frame transmission
5 on each of the virtual links; and

6 assigning a plurality of pointer values to a corresponding plurality of records in a pointer
7 value buffer associated with each of the virtual links, the assignment of the plurality of pointer
8 values based, at least in part, on the relative order in which data frames are transmitted on each of
9 the virtual links.

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1 2. (Amended) The method of claim 1, further comprising:

2 receiving the data frames transmitted on each of the plurality of virtual links in a common
3 receive buffer.

1 3. (Amended) The method of claim 2, further comprising:

2 reading the received frames from the common receive buffer based, at least in part, on the
3 pointer value assigned in each of the pointer value buffers.

1 4. The method of claim 3, wherein frames are promoted from the receive buffer with
2 priority given to pointer value order in higher transmission rate pointer value buffers.

1 5. The method of claim 1, wherein a plurality of pointer value buffers are used to
2 store pointer values denoting the commencement of transmission of frames on a corresponding
3 plurality of virtual links supporting a particular transmission speed.

1 6. The method of claim 1, wherein received frames are promoted in pointer value
2 order with priority given pointer values stored in the pointer value buffers associated with higher
3 transmission rate virtual links.

1 7. The method of claim 1, wherein the indication is an analog indication.

1 8. The method of claim 7, wherein the data network is an Ethernet network and the
2 indication is a receive data valid (RX_DV) signal.

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1 9. The method of claim 1, wherein the order of pointer values in each of the pointer
2 value buffers do not correspond to the order of frame transmission.

1 10. (Amended) An apparatus comprising:
2 a receive buffer having a plurality of records in which to store received frames of data;
3 a plurality of pointer value buffers each associated with one of a plurality of virtual links
4 of an aggregated link, each of the virtual links supporting a distinct transmission speed; and
5 a network interface, coupled to the receive buffer and the pointer value buffers, to assign
6 a plurality of pointer values in appropriate buffers, from among the plurality of pointer value
7 buffers, in response to the commencement of transmission of frames on the associated virtual
8 link, the assignment of pointer values based, at least in part, on the relative order in which the
9 frames are transmitted.

1 11. The apparatus of claim 10, wherein frames transmitted over each of the virtual
2 links are stored in the common receive buffer until retired by the apparatus.

1 12. The apparatus of claim 10, wherein the indication is an analog indication.

1 13. The apparatus of claim 12, wherein the indication is an asserted receive data valid
2 signal.

1 14. The apparatus of claim 10, wherein the network interface retires the received
2 frames from the receive buffer to a system state in order of pointer value in each of the plurality
3 of pointer value buffers.

1 15. The apparatus of claim 14, wherein the frames are retired in pointer value order
2 for each of the plurality of pointer value buffers, with priority given to pointer value buffers
3 associated with higher transmission rate virtual links.

1 16. (Amended) In a data network, a method for preserving frame order of a plurality
2 of frames transmitted across a plurality of virtual links of a multi-link trunk, wherein each of the
3 virtual links is associated with a discrete transmission rate, the method comprising:
4 receiving up to a plurality of indications denoting commencement of frame transmission
5 on each of the virtual links of the multi-link trunk; and
6 assigning a plurality of pointer values to a plurality of records in appropriate buffers, the
7 plurality of records corresponding to a number of indications received from each of the virtual
8 links, the appropriate buffers chosen from among a plurality of pointer value buffers associated
9 with the plurality of virtual links, the assignment of the plurality of pointer values based at least
10 in part on a relative order in which the indications of commencement of frame transmissions are
11 received.

1 17. The method of claim 16, further comprising promoting the received frames from a
2 common receive buffer in pointer value order of the pointer value buffers, with priority given to
3 the pointer value buffers associated with the higher transmission rate virtual links.

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1 18. The method of claim 16, wherein the indications are an analog signal denoting
2 receive data valid.

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1 19. (Amended) A storage medium comprising a plurality of executable instructions
2 which, when executed by a processor, cause the processor to implement a plurality of functions
3 including a function to preserve frame order of frames transmitted over a plurality of virtual links
4 each associated with a discrete transmission rate, the function implementing pointer value buffers
5 associated with each of the virtual links and, upon receiving an indication of frame transmission
6 from the virtual link, stores pointer values in appropriate buffers from among the pointer value
7 buffers, the pointer values denoting the relative order of commencement of frame transmission
8 on the virtual link.

1 20. The storage medium of claim 19, wherein the executable instructions further
2 include instructions to promote data frames received in a common buffer from the plurality of
3 virtual links in pointer value order as stored in the pointer value buffers, with priority given to
4 pointer values stored in pointer value buffers associated with higher transmission rates.